

## REMARKS

The Office Action mailed April 7, 2008, and made final, has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

The rejection of Claims 1-20 under 35 U.S.C. § 102(e) as being anticipated by U.S. Pub. No. 2004/0030739 to Yousefi'zadeh (hereinafter referred to as "Yousefi'zadeh") is respectfully traversed.

Yousefi'zadeh describes a multi-tier network computer system (10) that includes a three-tier architecture system having a front-end tier (12), a middle-tier (16), and a back-end tier (20). The front-end tier (12) includes a plurality of client workstations (14) each having a browser (34) and an operating system (36) on a hardware platform (38). The middle-tier (16) includes a plurality of web servers (18) and provides data processing and an interface between the front-tier (12) and the back-tier (20). The middle-tier (16) includes two control modules (CM) (28) that provide redundancy such that when an active CM (28) fails, a passive CM (28) becomes active for routing transactions to the web servers (18).

The back-tier (20) in Yousefi'zadeh includes a plurality of database servers (24) that are unified by at least one Remote Replication (RR) Module (32) included in a back-end functional layer (FL) module (30). The FL module (30), executing the RR module (32), dynamically distributes client requests via the middle-tier web servers (18) across multiple database servers (24) to balance the load of query traffic within the back-tier (20). More specifically, the RR module (32) sends a request to a selected database server (24) in the back-tier (20), receives the request result from the selected database server (24), and sends the result back to the requesting web server (18) in the middle-tier (16). When two RR modules (32) are used, the RR modules (32) are connected by a heartbeat interface such that one RR module (32) can determine when the other RR module (32) is not functioning, and the functioning RR module (32) can route transactions to the database servers (24).

In Yousefi'zadeh, if a query is an update query, the RR module (32) opens a transaction with each of the database servers (24) and updates each of the database servers (24). If the update operation has a failure, the content on each of the database servers (24) is rolled-back to the content before the update was initialized. In the case of an indirect return, the specific database server (24) redirects and returns the result to the initiating web server

(18), rather than sending the result to the RR module (32). The RR module (32) also checks the health status of the database servers (24) by pinging each server (24) and receiving a response. If a response is not received, the RR module (32) assumes that the database server (24) is offline and reports the problem.

Notably, Yousefi'zadeh does not describe or suggest, for example, *a framework to mediate between an application within a front-end tier and a middletier*, wherein the framework is configured to: allow the middletier to execute an object fetched by the application from a cache; when the execution of the object fails, repeatedly refresh the object within a limited number of retries; when the object refresh succeeds, return the object to the cache and again allow the middletier to execute the object; and when the object refresh does not succeed within the limited number of retries, quit the application in a fail-safe way. Rather, Yousefi'zadeh describes a Remote Replication Module that interfaces *between a middle-tier and a plurality of database servers within a back-end tier*. Accordingly, for at least this reason, Applicant respectfully requests that the Section 102 rejection of Claims 1-20 be withdrawn.

Claim 1 recites a system including a multi-tier application architecture having a middletier, said system comprising “a framework to mediate between an application within a front-end tier and the middletier, wherein the framework is configured to: allow the middletier to execute an object fetched by the application from a cache; when the execution of the object fails, repeatedly refresh the object within a limited number of retries; when the object refresh succeeds, return the object to the cache and again allow the middletier to execute the object; and when the object refresh does not succeed within the limited number of retries, quit the application in a fail-safe way.”

Yousefi'zadeh does not describe or suggest a system including a multi-tier application architecture having a middletier as recited in Claim 1. More specifically, Yousefi'zadeh does not describe or suggest a system that includes a framework to mediate between an application within a front-end tier and the middletier. Rather, in contrast to the present invention, Yousefi'zadeh describes a Remote Replication Module that interfaces between a middle-tier and a back-tier. Yousefi'zadeh describes that a front-tier merely includes client workstations each having a browser and an operating system on a hardware platform.

Furthermore, Yousefi'zadeh does not describe or suggest a system that includes a framework that mediates between a first-tier and a middletier that is configured to, when the execution of an object fails, repeatedly refresh the object within a limited number of retries. Rather, in contrast to the present invention, Yousefi'zadeh describes a Remote Replication Module that interfaces between a middle-tier and a back-tier, wherein the Remote Replication Module pings database servers within the back-tier to determine a health status of each database server.

Moreover, Yousefi'zadeh does not describe or suggest a system that includes a framework that mediates between a first-tier and a middletier that is configured to, when an object refresh succeeds, return an object to a cache and again allow the middletier to execute the object, and, when the object refresh does not succeed within the limited number of retries, quit the application in a fail-safe way. Rather, in contrast to the present invention, Yousefi'zadeh describes a pair of Remote Replication Modules that interface between a middle-tier and a back-tier, wherein the Remote Replication Modules re-route transactions if a database server within the back-tier is offline. Yousefi'zadeh further describes that if one of the Remote Replication Modules fails, the other Remote Replication Module routes transactions to the database servers.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Yousefi'zadeh.

Claims 2-8 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2-8 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 2-8 likewise are patentable over Yousefi'zadeh.

Claim 9 recites a method of executing an application, said method comprising "transmitting an object used by the application within a first tier to a second tier; executing a logic program at the second tier, wherein the logic program corresponds to the transmitted object; detecting an execution status of the logic program at the first tier, said detecting comprising: detecting when the execution of the logic program fails such that the object becomes stale; repeatedly refreshing the object within a limited number of retries; and if said refreshing succeeds, then returning the object to the first tier and transmitting a second object to the second tier from the first tier; and if said refreshing does not succeed within the limited number of retries, then quitting the application in a fail-safe way."

Yousefi'zadeh does not describe or suggest a method of executing an application as recited in Claim 9. More specifically, Yousefi'zadeh does not describe or suggest a method that includes detecting an execution status of a logic program within a second tier at a first tier. Rather, in contrast to the present invention, Yousefi'zadeh describes a pair of Remote Replication Modules that interface between a middle-tier and a back-tier, wherein if one of the Remote Replication Modules fails, the other Remote Replication Module routes transactions to the database servers.

Furthermore, Yousefi'zadeh does not describe or suggest a method that includes detecting an execution status of a logic program within a second tier at the first tier, wherein the detecting includes repeatedly refreshing an object within a limited number of retries. Rather, in contrast to the present invention, Yousefi'zadeh describes a Remote Replication Module that interfaces between a middle-tier and a back-tier, wherein the Remote Replication Module pings database servers within the back-tier to determine a health status of each database server.

Moreover, Yousefi'zadeh does not describe or suggest a method that includes detecting an execution status of a logic program within a second tier at the first tier, wherein the detecting includes, if a refreshing succeeds, then returning an object to the first tier and transmitting a second object to the second tier from the first tier, and if the refreshing does not succeed within a limited number of retries, then quitting the application in a fail-safe way. Rather, in contrast to the present invention, Yousefi'zadeh describes a pair of Remote Replication Modules that interface between a middle-tier and a back-tier, wherein the Remote Replication Modules re-route transactions if a database server within the back-tier is offline. Yousefi'zadeh further describes that if one of the Remote Replication Modules fails, the other Remote Replication Module routes transactions to the database servers.

Accordingly, for at least the reasons set forth above, Claim 9 is submitted to be patentable over Yousefi'zadeh.

Claims 10-15 depend, directly or indirectly, from independent Claim 9. When the recitations of Claims 10-15 are considered in combination with the recitations of Claim 9, Applicant submits that dependent Claims 10-15 likewise are patentable over Yousefi'zadeh.

Claim 16 recites a computer program embodied on a computer readable medium, said computer program comprising a code segment that "transmits an object used by an

application within a first tier to a second tier; executes a logic program at the second tier, wherein the logic program corresponds to the transmitted object; detects an execution status of the logic program at the first tier, wherein the code segments are configured to: detect when the object becomes stale; repeatedly refresh the object within a limited number of retries; and if said refreshing succeeds, then return the object to the first tier and transmit a second object to the second tier from the first tier; and if said refreshing does not succeed within the limited number of retries, then quit the application in a fail-safe way.”

Yousefi’zadeh does not describe or suggest a computer program embodied on a computer readable medium as recited in Claim 16. More specifically, Yousefi’zadeh does not describe or suggest a computer program that includes a code segment configured to detect an execution status of a logic program within a second tier at a first tier. Rather, in contrast to the present invention, Yousefi’zadeh describes a pair of Remote Replication Modules that interface between a middle-tier and a back-tier, wherein if one of the Remote Replication Modules fails, the other Remote Replication Module routes transactions to the database servers.

Furthermore, Yousefi’zadeh does not describe or suggest a computer program that includes a code segment configured to repeatedly refresh an object within a limited number of retries. Rather, in contrast to the present invention, Yousefi’zadeh describes a Remote Replication Module that interfaces between a middle-tier and a back-tier, wherein the Remote Replication Module pings database servers within the back-tier to determine a health status of each database server.

Moreover, Yousefi’zadeh does not describe or suggest a computer program that includes a code segment configured to, if a refreshing succeeds, then return an object to the first tier and transmit a second object to the second tier from the first tier, and if the refreshing does not succeed within a limited number of retries, then quit the application in a fail-safe way. Rather, in contrast to the present invention, Yousefi’zadeh describes a pair of Remote Replication Modules that interface between a middle-tier and a back-tier, wherein the Remote Replication Modules re-route transactions if a database server within the back-tier is offline. Yousefi’zadeh further describes that if one of the Remote Replication Modules fails, the other Remote Replication Module routes transactions to the database servers.

Accordingly, for at least the reasons set forth above, Claim 16 is submitted to be patentable over Yousefi'zadeh

Claims 17-20 depend, directly or indirectly, from independent Claim 16. When the recitations of Claims 17-20 are considered in combination with the recitations of Claim 16, Applicant submits that dependent Claims 17-20 likewise are patentable over Yousefi'zadeh.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of Claims 1-20 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully submitted,

Eric T. Krischke  
Eric T. Krischke  
Reg. No. 42,769  
ARMSTRONG TEASDALE LLP  
One Metropolitan Square, Suite 2600  
St. Louis, Missouri 63102-2740  
(314) 621-5070